

METHOD AND APPARATUS FOR  
PROPULSION AND POWER GENERATION  
USING SPINNING ELECTRODYNAMIC TETHERS

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ABSTRACT OF THE DISCLOSURE

The present invention improves the orbital maneuvering and power generation capabilities of a system of a satellite(s) connected with a conducting tether(s) by spinning the system about its mass center at an angular rate which is relatively high compared to the average orbital rate. An improvement in tether performance is achieved because at many times during rotation the tether is positioned at much better angles with the magnetic field and significantly higher currents are driven through the tether without destabilizing the system. The current can flow either in the direction of the EMF induced in the tether, or in the reverse direction, depending on the tether orientation with respect to the magnetic field and the mission goals. The reverse current is driven by the onboard power sources. Spinning electrodynamic tether systems can also be lighter and simpler in design and more flexible in operation.

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